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FOREIGN AGRICULTURAL EXTENSION ACTIVITIES

Ecuador, Brazil, Germany,

Czechoslovakia, and India

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Abstracts from Recent Reports and Publications Received by
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Ecuador

Reorganization of agricultural and zootechnical services. - Previous to 1924, the government of Ecuador had done little for the advancement of agriculture and the betterment of the rural people. The annual appropriation for the work of the general direction or board of agriculture and the support of its personnel was only about \$4,500. In 1924 the congress of the republic, realizing that agriculture and zootechny were two industries deserving the greatest attention from the government, passed a law for the reorganization of agricultural and zootechnical services. This law provided for a general board of agriculture (Direccion General de Agricultura) under the direction of the Ministry of Public Instruction, Agriculture, and Justice, with headquarters in Quito,

Provisions of
the law of 1924

having jurisdiction over all the official agricultural and zootechnical institutions of the country; that is, agricultural school instruction, agricultural and zootechnical experiment stations, and the encouragement of agriculture among farmers and farm

workers. A section of the general board of agriculture was established at Guayaquil, charged with phytopathological oversight and the execution of inspection measures in the customhouse at the place. The general board of agriculture has two divisions: A legal administrative division and a technical division. The chief of the technical division, a graduate of agricultural sciences, is the technical adviser of the Ministry of Agriculture and entirely responsible for the work of the technical division, practical reports on good agricultural-zootechnical practices, experiments, demonstration fields, and protection of plants and animals against pests and diseases. The general director, chief of the administrative division, is required to study and publish methods of agricultural-zootechnical accounting, give instruction in good farm management, disseminate and explain agricultural-zootechnical legislative regulations. The law provided that the general board in Quito should employ an agricultural expert, a zootechnical expert, with an assistant for each, and the technical section at Guayaquil, an agricultural and a zootechnical expert. The personnel of the general board of agriculture and its section are itinerant officers and are required to go to any point in the republic, where their services are needed, at the expense of the national treasury or of individuals, to give practical instruction, conduct studies of a general character, assist in the control of plant and animal diseases and pests, or give popular lectures.

Course to prepare agricultural agents. - In the summer of 1927, the Ministry of Agriculture opened an intensive course in agriculture for training agricultural experts to be employed as extension agents in the various provinces of the republic. Scholarships were provided for 15 young men, preferably natives, who were allowed 80 sucres (\$38.96) while taking the course. Young men between 18 and 50 years of age, who had completed the course in tobacco raising or held a bachelor's degree and had passed the examination in general crop growing, were admitted upon the condition that they would take the entire course. The government provided transportation to Quito and return to their homes for applicants living outside of the city. The young men were given practical training in all kinds of farm labor on farms specially designated for the purpose.

B r a z i l

Scheme for extension instruction . - In view of the decree of January 13, 1925, regarding the general reform of technical education in Brazil, the Minister of Agriculture, Industry, and Commerce, realizing the great need of reorganizing agricultural instruction, called upon persons recognized as authorities in this subject to submit propositions for his consideration. A commission of nine persons - four directors of schools of agriculture, a director of a zootechnical station, the director-general of agriculture, a professor in a school of agriculture, the inspector-general of subventioned establishments, and the director of agricultural inspection and development - was appointed to discuss the propositions presented and to draw up conclusions. The director of agricultural inspection and development of the Ministry of Agriculture, Industry, and Commerce, was charged with elaborating a project of law based on these conclusions for the purpose of organizing agricultural instruction in the republic.

In regard to instruction for adult farm men and women, the commission agreed that the service of "agricultural extension," as it was called in the United States, would be the system adopted for giving practical training in agriculture to all persons living on farms who were not able to attend the regular schools, rather than European methods of itinerant teaching which had not hitherto given very encouraging results in Brazil.

In the project of law drawn up February, 1926, by the director of agricultural inspection and development of the Ministry of Agriculture, Industry, and Commerce, provision is made for extension instruction in agriculture through the following means:

Project of law
for
extension
instruction

- (a) Courses.
- (b) Lectures, accompanied by practical demonstrations.
- (c) Agricultural bulletins containing practical instruction for farmers.
- (d) Consultations.
- (e) Cooperative demonstrations on farms.
- (f) Motion pictures.

In accordance with this law, the courses will take the form of "short courses" for men and women, as conducted in the United States by extension workers, will last from one to four weeks, and will be given by schools, agricultural inspectorates, and technical establishments. The subjects treated will be those of practical interest to the farmers of the various regions, who will receive advance notice of the programs and dates of the courses. Single lectures, followed by practical demonstrations, will also be given on days previously announced. Cor-

respondence courses will be arranged for farm men and women under the supervision of the general board of agricultural instruction, and all the specialists in the service of the Ministry of Agriculture, Industry, and Commerce will give assistance in this work in their respective branches.

The service of agricultural cooperative demonstration, provision for which was made in 1920, when the directorate of agricultural inspection and development was reorganized, will be continued along the same lines. This

Cooperative
demonstration
service

service, which was inaugurated in 1921, takes the form of demonstrations of various economic crops conducted through contracts between the farmer and the Ministry of Agriculture, Industry, and Commerce. By the terms of this contract, the agricultural inspectorate contributes technical assistance and furnishes farm machines, insecticides, seed, fungicides, and fertilizers, the farmer providing the piece of land for the demonstration, two laborers, the animals needed, farm manure, and a shelter for the machines. The results from these cooperative demonstrations have been very encouraging. In 1926, there were 138 demonstration fields covering a total area of 7,912,000 square meters (more than 85,000,000 square feet, or about 1,950 acres).

C z e c h o s l o v a k i a

Agricultural broadcasting. - The radio is proving an effective means of providing the country people of Czechoslovakia with systematic technical in-

Agricultural
broadcasting
commission

struction in agriculture with a view to increasing production through the adoption of better and less expensive farm practices. In 1925, an agricultural broadcasting commission, composed of 10 persons, representatives of the principal agricultural bodies of the republic, was organized through the efforts of the chairman of the Agricultural Union of the Czechoslovak Republic and a well-known agronomy expert. Through arrangements made by the Czechoslovakian Society of Broadcasting, agricultural programs have been broadcast daily since early in 1926. Both morning and evening programs are given during the week, and on Sunday there is a much more extensive program including special talks. The information given includes stock exchange reports; trade, commercial, meteorological, and cooperative association reports; popular discourses and lectures on seasonal and agricultural subjects of all kinds, of interest to the country people, besides weekly programs for the farm women. The radio audience of the broadcasting commission in the summer of 1927 numbered nearly 250,000 persons. This commission has the distinction of being the first European organization to use the dialogue form in broadcasting and to broadcast interviews. Through branch stations in Moravia, Slovakia, and Eastern Slovakia, the country people throughout the republic are able to listen to programs broadcast from the central office at Prague. From the first of the year 1926 to July, 1927, the broadcasting commission sent out 11,257 communications, among which were included 935 meteorological reports, 4,924 economic reports, 752 stock exchange bulletins, 1,875 technical discourses, and 755 popular lectures. English and French reports have recently been included in the programs in order to arouse interest in the

agriculture of foreign countries. English, French, Polish, Jugoslavian, Rumanian, Belgian, Dutch, Austrian, German, and American newspapers have expressed admiration for the scheme of broadcasting information to the farmers adopted by the Czechoslovak Broadcasting Commission. The Minister of Public Instruction, the Minister of Agriculture, and other public officials have assisted in organizing this work.

G e r m a n y

Farmers' experiment clubs. - The organization of farmers' experiment clubs or rings (Versuchsringe) in Germany began five or six years ago under the auspices of the agricultural chambers as a result of the agricultural crisis following the World War. The movement originated among the large landowners who wished to systematically conduct experiments on their own farms to de-

Object

termine improved methods of increasing production. As only the most well-to-do farmers were able to employ experts at their own expense to conduct such experiments, a well-known professor of Halle, in the province of Saxony, suggested that farmers owning estates within a reasonably short distance of each other should organize societies or "rings" and each contribute to the expenses of an expert to conduct experiments for solving questions in farm practice for their mutual benefit. Accordingly, the first experiment club in Germany was organized

First club founded in province of Saxony

in Saxony in 1921 and was composed of large landowners. The large farmers' experiment clubs have made rapid growth in this province, where it has been found that for best results not more than 12 to 15 persons should belong to a club with farms located within as small a territory as possible,

to reduce the amount of time consumed by the club director in traveling from one farm to another, and to make results obtained more valuable for all the members. The expenses of the clubs are borne by the members, each paying a certain contribution, varying according to the size of the club, for each morgen (about two-third acres) cultivable, on the average amounting to about 50 pfennings or one-half mark. College-trained farmers are appointed to conduct the experiments, which cover chiefly the realm of crop growing, meadows and pastures, and in some cases questions relating to farm management, stock feeding, and farm machines. As about 80 per cent of the entire farming area in the province of Saxony, as well as throughout Germany, is controlled by

Organization of small farmers' clubs in Saxony

the peasant owner, who, on account of the lack of school and college training, was not in position to take advantage of scientific progress in farming, shortly after the establishment of large farmers' clubs, the Saxony agricultural chamber proposed to organize owners of the small and medium-sized farms in the same way. The cooperation of the local agricultural schools is enlisted in forming the peasant farmers' clubs. The director of each club is a college-trained farmer and conducts the experiments under the management and supervision of the director or one of the teachers of the agricultural school, who gives the farmers advice in using the results of the experiments. For several years, the small farmers' club had to bear all the expenses connected with its operation

which averaged about 50 pfennings a morgen, or 24 or 30 pfennings, in case several large owners, as sometimes happened, became members of the small farmers' club. In March, 1926, funds were appropriated by the government for the maintenance of the peasant experiment system, which has to a great extent solved the question of financing these clubs. In Saxony, the number of clubs organized in an agricultural school district is limited to two or three, as more can not be properly managed by a school. The Saxony agricultural chamber requires that applicants for the position of experiment club director should

Requirements of
club directors
in Saxony

have had three or four years' practical training, at least half of this time being spent on a strange farm; should be graduates of an agricultural school or an agricultural training college; should have a certificate of personal qualifications and practical training from the director of the agricultural school; and should take the seven months' training course, conducted by the agricultural chamber at the experiment Institution of Lauchstadt for the training of experiment experts. The club director receives a salary of about 100 marks (about \$23) a month with free board and lodging. Though the club members provide laborers for performing the manual work connected with the experiments, the director measures off experiment plots, assists in sowing seed and applying fertilizers, and superintends the harvesting and threshing.

In the former kingdoms of Prussia and Wurttemberg, where the agricultural chambers soon followed the example of the province of Saxony, the movement has

Organization of
large farmers'
clubs in
East Prussia

spread rapidly. In the province of East Prussia, especially, the work of organizing experiment clubs has proceeded by leaps and bounds. The first club was organized in 1923 and is still in existence. Beginning with a membership of 6 farmers, owners of large farms, covering an area of about 15,500 acres, it now has 35 members owning more than 45,000 acres. This club conducted 30 experiments the first year and 420 the third, the cost of experiments the first year amounting to 2,000 marks, and the third year to 12,000 marks (about \$460 and \$2,760 respectively). In 1927 there were about 42 clubs of large farmers in East Prussia, owning a total area of about 240,000 acres, which were united into the Association of East Prussian Experiment Clubs. The results with the large farmers' clubs were so favorable that in 1925 steps were taken to make the experiment with clubs of owners of small and medium-sized farms. Accordingly, the first club of small owners was organized in cooperation with

Small farmers'
clubs in East
Prussia

the agricultural school of the district of Preussisch-Holland, an arrangement which had proved satisfactory in Saxony. In 1927 East Prussia had 36 small farmers' clubs, representing 86,000 acres distributed over 450 farms; that is, an average of about 200 acres for each farm. Seventeen of the 27 school districts had up to that time aided in establishing small farmers' experiment clubs, the largest number allowed in one district being five. The following statutes, signed by all the members in organizing small farmers' clubs in East Prussia, are in the main similar to those adopted by other provinces:

(1) Under the name, "Experiment Club of _____," a society is founded for the economic betterment of the members. The headquarters are _____, and the business year extends from April 1 to March 31.

Statutes of
small farmers'
clubs

(2) A majority of votes is necessary to admit new members.

(3) Members must comply with all resolutions passed at the meetings and must make the contributions required.

(4) Members may withdraw from the club at the expiration of each business year, upon six months' notice.

(5) Meetings may be held when necessary, at the suggestion of one-fourth of the members. Resolutions passed are effective only when approved by the agricultural chamber.

(6) An experiment director is appointed by the club to conduct the practical and administrative work in accordance with the instructions of the business manager.

(7) The routine business of the club is conducted by the director of the local agricultural school.

(8) The business management is supervised by the agricultural chamber, to which plans for experiments and other economic measures must be submitted for approval.

(9) Members' contributions are used to defray the actual expenses of conducting the experiments and to defray the personal expenses of the director. Each owner of the piece of land on which the experiment is conducted bears the expenses connected therewith, while the board and lodging of the director are paid jointly by the members.

(10) The salary and traveling expenses of the director, the business manager, or his representative, are paid by the agricultural chamber, from its allotment of public funds.

(11) Votes of two-thirds of the members are required to dissolve a club, and property belonging to the club at this time goes to the agricultural chamber.

In East Prussia, the experiment directors must be academically trained persons. Those conducting experiments on small farmers' estates are farmers' sons who have generally gone through the agricultural schools of their districts and sometimes have taken a half year's course at the seed farm at Hafenburg. They also receive special training for their work through short courses arranged by the agricultural chamber. The small farmers' clubs leave the selection of the directors to the directors

of the agricultural schools. The salary of the directors ranges from 50 to 150 marks (about \$11.50 to \$34.50) a month, and they are provided with free board and lodging. Motor cycles are often furnished to enable them to travel quickly from one farm to another. The experiments conducted in the East Prussia clubs, in

Experiments

the case of those of both large and small farmers, have generally been confined to the realm of crop growing, and include fertilizer, soil cultivation tests, variety tests, and the like. In the winter experiments in feeding dairy cattle, calves, and hogs are conducted, principally to fill in the time during the slack season. In the case of the small farmers' clubs, the kind of experiments is left entirely to the club members, as the object is not to make scientific investigations, but to solve practical questions for their mutual economic betterment. The plan is adopted of having a number of small plots of each crop experimented with, for example, plots of 10 square meters (about 100 square feet) for grain crops and 25 square meters (about 250 square feet) for potatoes and other root crops, which the director can manage more or less by himself without interfering with the owner's farming operations. In backward regions model experiments on larger plots are sometimes conducted to serve as demonstrations to owners. In 1926, about 1,000 experiments were conducted by small farmers' clubs, including 700 fertilizer experiments with grain, potatoes, and pastures, 250 variety tests with grain and potatoes, and 50 miscellaneous experiments, an average of 30 to 40 experiments to each club.

In Wurttemberg, both small and large farmers' clubs are found, but the average size of the farm on which the experiments are conducted is much smaller. The large farmers' clubs consist of owners of 8 to 12 farms of 66 to 266 acres

Experiment clubs in Wurttemberg

each, situated at comparatively short distances from each other. All the farms of several entire communities are included in a small farmers' club instead of individual farms, and in this way progressive as well as backward farmers are induced to join. All the Wurttemberg clubs owe their establishment to the agricultural chamber which contributes substantially to their support. The entire expense of the small farmers' club is borne by the agricultural chamber. The chamber generally contributes about half of the expense of the large farmers' clubs, the other half being obtained by assessing each member according to the size of his farm. More attention is now being given by the agricultural chamber to organizing the small farmers than the larger landowners, with whom the movement began, as about 95 per cent of the farm land in Wurttemberg is cultivated by the peasant farmer. A college-trained farmer conducts the experiments of both classes of clubs. The large farmers' club has a board of directors, composed of a president and two advisers, chosen by the members from their own number. The board of directors of the small farmers' club has three representatives from each of the communities included, the president of the district association, and the agricultural school director, who is also the director of the club. The small farmers' clubs cooperate with the agricultural school as in Saxony and Prussia. The program of work of the large farmers' club is drawn up under the direction of the division of plant production of the agricultural chamber, and for the small farmers' club the director arranges a program in co-operation with the chamber, which is carried out through the agricultural school.



The experiments include variety, fertilizer, and tillage tests.

It is felt that the experiment clubs are successfully solving the question of giving the farmers, especially the owners of small and medium-sized farms,

Results the benefit of expert advice on their own farms without the expenditure of much money on their part.

The experiment plots of club members form object lessons to their neighbors, and great interest is being shown in organizing clubs, especially in East Prussia. The club members are brought into contact with each other through meetings held during the season to inspect the plots and to discuss the progress of the experiments. Every year at the end of the season a tour is made by the members of each club to inspect the work accomplished. Talks on the spot, discussions, and criticisms at the close of the tour result in valuable information and helpful suggestions. As an instance of the practical results of the work of the experiment clubs, farmers living in a district near the city of Berlin, who heretofore depended on potatoes and rye as their principal crops, have turned their attention to dairying and growing vegetables which promise to be very profitable lines of farming, owing to the short distance from the Berlin market.

The apprentice system for farm girls. - The apprentice system is practiced in Germany to provide young girls with practical continuation instruction in

Object properly performing the various tasks connected with the farm and home that devolve upon farm women, as

well as to give practical training to those who intend to qualify for the positions of teacher of agricultural housekeeping science and of "certificated rural home manager." A brief summary of the rules and regulations now practiced in the Rhine Province, which, in the main, are the same as those followed by other provinces that have adopted this system of instruction, is given herewith.

On July 19, 1925, the Minister of Agriculture, Domains, and Forests issued a decree, stating that a period of practical apprenticeship in rural home management followed by an examination by the agricultural

Practical training chamber should be a preliminary requirement for home managers; that thereby persons intending to follow an housekeeping teachers agricultural housekeeping teachers al calling would become familiar with the practical requirements of such a vocation, and those who had

already received certificates would be afforded opportunity for advancement. Nearly two years later, the ministerial decree of May 7, 1925, provided that the training of the teacher of agriculture housekeeping science, who had hitherto received both practical and theoretical instruction in college, should include a two-year apprentice period in a suitable farm home, followed by an examination by the agricultural chamber before entering the educational institution.

The provincial agricultural chamber, the provincial vocational office, and local vocational offices, act as agents, free of charge, between women who wish to undertake the training of girls on their farms and farmers' daughters who desire to take

Apprentice agents advantage of this means of preparing for their future work as agricultural housekeeping teachers or managers of their own or other farm homes. Ap-

plicants are furnished blanks with questions to be answered regarding school

training, occupation since leaving school, the reason for taking the apprentice training, and the subjects they desire to take.

The Ministry of Agriculture, Domains, and Forests requires that a two-year apprenticeship must be served in a suitable farm home, followed by an examination before the agricultural chamber to obtain the title "certificated farm home assistant." The term "suitable farm home" includes both the personality and qualifications of the teacher and the suitability of the apprentice farm, the selection or recognition of the farm being left to the judgment of the agricultural chamber. When a farm woman wishes her farm placed on the list of farms "recognized" by the chamber she is required to sign a blank form agreeing to the inspection of her farm by a representative of the chamber. Though the aim of the apprentice system is to admit to examination only apprentices from farms thus recognized by the provincial chamber, up to 1925 the agricultural chamber of the Rhine Province had not insisted upon this requirement. Farm women who notify the chamber that they desire to train apprentices are required to fill out blank forms containing the following questions:

Questionnaire for farm woman training	<p>How many persons in your family?</p> <p>How many persons employed; what are their positions?</p> <p>Give size and nature of the farm and home garden.</p> <p>Livestock: Horses, oxen, cows, hogs, poultry, other animals?</p> <p>Is the milk sent to the dairy or is it made into butter and cheese?</p> <p>Are you prepared to train the apprentice in all the subjects required?</p> <p>Are you prepared, and is it possible under your farm conditions to teach apprentices who desire to take the elective subjects?</p> <p>Who directs the apprentice?</p> <p>Do you wish to sign the contract published by the chamber?</p> <p>Have apprentices instructed on your farm taken the examination before the agricultural chamber, and how many?</p> <p>When can the apprentice begin to serve?</p> <p>Have you special requirements in the selection of an apprentice?</p>
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Duties of the instructress	<p>The woman who offers her farm as a training place for apprentices takes the young girls under the protection of her family and binds herself to train them thoroughly in all rural home management work suited to their age and strength. On Sunday they are allowed to attend religious services and are given at least 8 days' vacation a year, girls under 16 years of age being allowed 14 days. The first four weeks of the apprenticeship constitute a probation period, and if no complaint is made on either side at the end of this time, the contract becomes binding for two years. The apprentice on her part pledges herself to obey her teacher in everything, to do willingly all the work required of her, and to be courteous and unassuming toward the instructress as well as toward other employees. She must keep her bedroom tidy and be very careful in handling every article used in connection with her work. She is</p>
Duties of the apprentice	

required to provide such working clothes as she will need.

The instruction given the apprentice is divided into obligatory and elective subject. Obligatory subjects include cooking, preserving, baking, washing and ironing, housework (including the regular daily and weekly cleaning of the farm home, care of all kinds of utensils and implements used in the home, and of floors and floor coverings), dairying, gardening, poultry raising, slaughtering animals, handling meat (including brining and smoking), and needlework. Hog and calf raising and such other work as the special needs of the individual farm may require are considered elective subjects, and the apprentice must state in her application for training whether or not she wishes to take these subjects.

At the end of the two years' training the apprentice makes out an application for admittance to the examination which is held once a year at Easter, on blanks furnished by the agricultural chamber. The application must reach the chamber by February 1, at the latest, and must be accompanied by a sketch of the life of the applicant written by herself, a certificate of discharge from school, a certificate from the apprentice instructress, a description of the farm on which she has served her apprenticeship in the form of a short composition, and a memorandum book kept by the applicant containing tested recipes and notes on various pieces of work which she has accomplished. The agricultural chamber sends the applicant a notice of her admittance to the examination, which gives the place and date on which it is to be held. A forenoon and an afternoon are devoted to the examination, which is both theoretical and practical in character. Examinations may be held at the apprentice farm, in a woman's home-economics school or a farm housekeeping school, according to the decision of the agricultural chamber after consultation with the apprentice instructress or the principal of the school. The applicant must pay for the cost of the trip and her living expenses at the place where the examination is held. The examination fee amounts to 15 marks which must be sent to the agricultural chamber before the examination takes place. Several apprentices take the examination on the same day. The examining committee chosen by the chamber consists of a representative of that body, who is the president of the committee, a farm housewife and a home-economics teacher. The committee marks the examinations, "very good," "satisfactory," and "unsatisfactory." Apprentices who pass the examination receive the title "geprüfte landwirtschaftliche Hausgesellin," (certificated farm home assistant).

An apprentice who has successfully passed the apprentice examination and has had three years' practice in farm home management, one of which has been spent on a strange farm, may take the examination for farm home mistress or instructress. The applicant who passes this examination is entitled to train apprentices in a suitable farm home, either her own or one in which she has been employed as a home assistant. The application must be accompanied by a brief sketch of the applicant's life prepared by herself, a certificate of the apprentice examination, a certificate of three years' practice in farm home management, a certificate of good conduct,

and a doctor's health certificate. While the applicant who takes the apprentice examination is required to do simple household work alone and the more difficult tasks under supervision, the first qualification for the home instructress's examination is perfect self-reliance. The subjects of the examination are cooking, preserving, baking, washing and ironing, housework, slaughtering, dairying, gardening, poultry, raising hogs and calves, and needlework. The length of the examination, date and place held, fees, and marks awarded are the same as for the apprentice examination. Those who pass the examination receive the title "geprüfte landwirtschaftliche Hausmeisterin," (certificated farm home mistress.)

I n d i a

Extension workers. - Though the greater portion of the people of India live by farming, and the departments of agriculture of the various provinces have been endeavoring for a number of years to introduce better methods of farm practice and improved implements and machinery, agriculture is still in a very primitive state in many parts of the country.

Landlords, especially owners of large estates, which are often leased to illiterate peasants, generally take little interest in agriculture, and both tenants and landlords are opposed to any change in the methods which they have practiced for years. The departments, though conducting some experimental and research work, direct a large part of their efforts to the task of inducing the rural people to change their primitive methods of farming, but so far have been handicapped by insufficient itinerant workers to cover properly the large territory assigned to each one, as in India, perhaps more than in most countries, it is necessary for the extension worker to come into close contact with the peasants. Of the eight provinces in India - Punjab, Bengal, Bombay, Madras, Central Provinces, United Provinces, Assam, and the Northwest Frontier Province, - all except the Northwest Frontier Province, until 1901 a part of Punjab, have a department of agriculture, with a director in charge, and for purposes of experimental and demonstration work are divided into circles or regions, each consisting of thousands of villages. The official in charge of the experimental and extension work of a circle is called a deputy director of agriculture, except in the province of

Assam, where he has the title of superintendent. The titles of members of the deputy directors' staffs vary somewhat in the different provinces. In the Central Provinces and Punjab, they are called extra-assistant directors, agricultural assistants, and field men. In Bengal, there are superintendents, district agricultural officers, and demonstrators; there is also an assistant director. In the United Provinces, there are agricultural service officers, demonstrators, and farm managers; in Madras, agricultural demonstrators; and in Assam, inspectors and demonstrators. Bombay has a joint director, deputy directors, agricultural overseers, and field men. The Northwest Frontier Province does not have a regularly organized department of agriculture, but maintains an agricultural experimental farm, in charge of an official known as an agricultural officer who directs the experimental and extension work of the province and has a staff of assistants. All workers on the extension staffs are more or less engaged in itinerant work, and most of them come into close touch with the rural people. The directors of agriculture discuss plans of work with their deputies and from time to time travel over the provinces to inspect what has been done. The officials, known variously as extra-assistant directors, agricultural overseers, superintendents, or agricultural service officers, are trained and experienced persons, largely

Functions of the
extension workers

responsible for the demonstration work in their circles, which is under the supervision of the deputy directors, are in charge of government seed and demonstration farms, assist in organizing agricultural associations and conducting their meetings, organize demonstration of improved machinery and implements, supervise demonstration plots, act as assistants to specialists, and in fact form the connecting link between the experts of the department and the rural people. These officials sometimes give lantern-slide lectures to explain scientific results in a clear and simple manner. The agricultural assistants or demonstrators are college-trained but are generally young and inexperienced men who are not qualified to organize district work alone, but under the direction of the extra-assistant directors superintend government farms, conduct demonstrations, teach, and carry on research work. Two agricultural assistants or demonstrators are generally assigned to each district in a circle; that is, one man to 300 or 400 villages. As this is a large territory for one man to cover, in some of the provinces he is assisted by skilled laborers, generally native plowmen, who have been trained on government farms, and are known as kamdars, or field men in the Central Provinces, mukaddam in Punjab, and maistris in Bombay. In Assam these skilled laborers are called demonstrators and are about 18 years old when appointed. The field men, who come into closer contact with the peasants than the extension officials, actually do with their own hands the work required in demonstrating new methods. In addition to these regular extension workers, the experts of the departments sometimes assist with the demonstration work.

Survey by the Royal Commission on Agriculture in India. - The Royal Commission on Agriculture in India was appointed in 1925 by the British Government to ascertain the results of the efforts of the provincial departments of agriculture for the improvement of agriculture and rural economy and the betterment of the condition of the rural people, and to make recommendations for further measures for improvement. One of the principal tasks of the commission was to investigate the measures being taken for the promotion of agricultural and veterinary research, experiment, demonstration, and education; for the introduction of new and better crops; and for improvement in agricultural practice, dairy farming, and stock breeding. A comprehensive questionnaire covering the entire realm of agriculture and rural economy in India, was prepared and sent to officers serving under the government of India, officials of the provincial departments, principals of agricultural colleges, bank presidents, landlords, and others who were in touch with farming people and were acquainted with the rural conditions. After answers has been received, meetings were held by the commission to discuss the information contained in the replies and to obtain further information by oral evidence from those persons who had answered the circulars.

Both written and oral evidence showed conclusively that demonstrations in some form or other were the most successful means of influencing farmers to adopt improved practices, and signal instances of the success of demonstration work were noted in a number of the provinces. The questions asked in regard to demonstration and propaganda work were:

Demonstration and propaganda work	(1) What are the measures which in your opinion have been successful in influencing and improving the practice of farmers?
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(2) Can you make suggestions for increasing the effectiveness of field demonstrations?

(3) Can you suggest methods whereby farmers may be induced to adopt expert advice?

(4) Give particulars of any striking instance of the success or failure of demonstration and propaganda which has come to your notice, and reasons for the same.

From evidence obtained in the province of Punjab, it appeared that demonstration farms and plots has been effective in influencing farmers to adopt improved practices and implements though in the opinion of most of those answering the questionnaire, demonstrations on the farmers' own land were preferable to demonstration farms conducted by the government. The latter had been found useful in providing farmers with good seeds and sets, and to be more effective, their number should be increased, one being established in each tahsil, or revenue division of a district. Good results had been obtained when private farms were conducted as demonstration farms under the department's direction. A skilled laborer is stationed on the farm for six months or a year in some cases, which afterwards is managed by the owner, and in others, the zamindar, or peasant landlord, manages the farm according to the advice of the deputy director, the owner bearing all expenses and receiving all the income. Farms of this kind are object lessons for the community and small farmers are induced to adopt the methods practices. Itinerant demonstration parties and been doing good work in Punjab for a number of years. These are conducted by an agricultural assistant or a native skilled laborer, who travels from village to village in a cart, carrying a set of improved implements and showing how they are handled and adjusted by actual work on the farmers' own land. A phase of demonstration work that has proved successful in this province is known as concentration work. The object of this demonstration scheme, which was begun four years ago, is to introduce better farm practices and improved implements throughout an entire village. Effort is made to induce all the farmers to cooperate in the work, by using the same seeds and adopting the same practices and implements, thus making the village an object lesson to neighboring villages. In 1927, 56 villages in various parts of the province conducted concentration work. The formation of better farming cooperative societies, organizations of zamindars, who agree to manage their farms according to the department's advice, has been effective in influencing and improving the practice of farmers. In one instance where a whole village was organized in this way, iron plows have replaced the old native implements, improved varieties of wheat, cotton, and sugar cane are being grown on 90 per cent of the land under cultivation, and the neighboring villages are adopting the improved methods which they have seen demonstrated. Touring the province with a motor car equipped with a motion-picture outfit for showing improved methods of farming in India is a new venture in Punjab as well as in India, which was started in 1927.

Successful demonstra-
tion measures in
Punjab

Concentration work

Better farming
societies

An example of good results from demonstration plots on farmers' fields was the successful eradication of earcockle in one district where the farmers had sustained great losses with their wheat, due, as they thought, to climatic causes. The demonstrations were conducted by the economic botanist, on the condition that he would bear the loss if the crops on the demonstration plots were worse

Instances of successful demonstration work in Punjab

than those on the farmers' plots, and the farmers would be the gainers if these plots were better. The farmers in this district now have no trouble from earcockle, as they purchase clean seed or clean their own seed. In the Gurgaon district, demonstration and propaganda work was not only responsible for the introduction of improved practices and implements, but an entire change was noted in the whole outlook and mental attitude of the rural people, as well as a willingness to listen and follow advice, and a desire for education. The number of boys and girls applying for admission to the schools was larger than could be accommodated, and a great many men and women were attending the lantern lectures given by agricultural workers. A boy scouts association has been organized and there was a health association which was constantly increasing in membership. Health tours were being held, villages cleaned up, and one village had begun to plant flowers. More than 1,600 iron plows were being used in place of wooden ones; the demand for improved seed of wheat and cotton was greater than could be supplied; and better bulls were being introduced. Better-living cooperative societies were being organized, and a community hall had been built.

As in the province of Punjab, the consensus of opinion of those answering the questionnaire in the Bombay Presidency was that the most important measure in influencing the farmers to adopt new practices was actual demonstration on their own fields; that as they were extremely conservative, they must be convinced that the method advocated by the department was an improvement over and would bring greater returns than the one practiced, or that it would be to their advantage to substitute the new implement for the one in use. The aid of unofficial people and agencies has been very effective in inducing the farmers to accept expert advice. One of the greatest agencies of this kind is the Taluka

Taluka Development
Associations of
Bombay

Development Associations, societies peculiar to this province. These associations are voluntary organizations, composed mostly of actual farmers, each society embracing farmers of a taluka or revenue division, containing 100 to 200 villages.

The organizers are generally persons interested in agriculture, often residents of towns, and sometime persons of public importance. The object of these organizations is to promote agriculture in their districts. They receive support from individuals, cooperative societies, grants from taluka and district local boards, and an annual subsidy from the government on the condition that they employ a demonstrator approved by the department.

One of the striking instances of the success of demonstration work in Bombay is the adoption of Bordeaux mixture as a spray for grapevine mildew in a

Instances of successful demonstration work in Bombay

district where grape growing, which in 1908 was dying out, has again become profitable. Demonstrations conducted by the department for four years in cooperation with a prominent grape grower succeeded in enlisting the interest of the farmers

of the community, who at first had been suspicious of the new method. The great saving resulting from the comparatively small expense for treatment has led to the general use of Bordeaux by the grape growers of this section. Other successful results from demonstrations are the use of iron plows, improved varieties of

cotton, and the practice of steeping millet seed with a solution of copper sulphate to prevent smut.

In the United Provinces one of the most successful measures for including farmers to change their antiquated practices is growing improved varieties

Demonstration center
for a group of village-
es in the United Prov-
inces

according to modern methods on a small piece of village land leased by the department to serve as a demonstration center for a group of villages. When the land has been selected, one of the department's demonstrators, specially trained for this

kind of work, is sent to the village where he lives during the entire period of the demonstration. He is provided with bullocks, improved plows, and all other implements so as not to interfere with the regular farm work of the village. He works slowly and cautiously at first in order to win the confidence of the people and keep them from thinking the department is trying to take over some of their best land for its own use. The first year the demonstrator leases a very small piece of land, probably one-half to 1 acre, and hires part-time laborers and some of the more intelligent young people in the village to help with the labor. The land is then prepared for the crop to be grown, often sugar cane, only improved methods being used. Arrangements are also made for a seed store and for a supply of new implements for the farmers. The first year the farmers watch results critically, but by the end of the season they begin to send in requests for seeds and assistance. Two successful village demonstrations have been conducted in the Rohilkhand Circle. In 1924-25, one-half acre of land was leased by the department for one year for about 12 rupees (\$3.85), to be used as a demonstration center for a group of three villages in the Budaun district. A demonstrator was put in charge of the plot, on which an improved variety of sugar cane was grown by improved methods. The yield was estimated at the rate of 78,000 pounds per acre, while the native cane in adjacent fields produced only about 29,000 pounds per acre. The farmers showed great interest in the plot and the entire crop was sold for seed. The department increased the plot to 6 acres the next season, 1 acre being devoted to sugar cane and most of the remainder to growing wheat for seed, with a small piece reserved for raising fodder for the bullocks used in the work. That year the farmers in the three villages raised small plots of cane about 10 acres in all, according to the improved methods, from which they harvested good crops, worth about 5,400 rupees (\$1,728), about two and a half times as much they would have realized from native crops grown by the old methods. In 1926-27, they raised 26 acres of improved sugar cane, estimated at 10,400 rupees (\$4,528) and in addition 525 acres of improved wheat, which brought a considerably higher price than the old variety. In these three villages, as a result of adopting improved varieties and methods, the farmers were able, through their increased profits, to pay off their old debts, a seed store was opened, and the villages became the center of agricultural instruction and demonstration for the entire district. The second village demonstration was begun in 1918-19, when the department selected one-twenty-fifth of an acre in the village of Mundia, in one of the best sugar-cane districts of the circle, as a demonstration center for a group of seven or eight villages. When the demonstration started, this group of villages had 64 sugar-cane mills and 8 factories for converting juice into raw sugar, about 2,532,573 pounds of juice being handled in a year. In 1926-27, there were 146 mills, besides 2 large power mills, and 18 factories, where 6,746,960 pounds of juice were converted into sugar. From one-twenty-fifth acre of improved varieties grown in 1918-19, the

area had increased to 235 acres in 1926-27, and only 38 acres of native varieties were grown in 1926-27 against 236 in 1918-19. The group of villages had become the center for the spread of improved varieties in the district, and according to latest official reports, 3,825 acres out of a total area of 4,120 acres were sown to varieties recommended by the department of agriculture.

As in most of the other provinces, demonstrations on the peasants' own land in Madras have been found to be the best means of influencing them to change their practices. The most intelligent and progressive peasant in a locality is persuaded to

Method of conducting
demonstrations in
Madras

allow a small portion of his land, often one-fourth of an acre, to be used as a demonstration plot under the direction of a demonstrator. The same crop is grown by the old methods on another

plot along with the demonstration plot. The peasant actually does the work on the two plots, keeping accounts of the expenditures, and in this way all suspicion is removed from his mind. The demonstration plots are located near a public road or in some other place where they will be easily seen, and their site is marked by a flag, or some such means is used to call attention to them. This method of conducting demonstrations has proved very popular in Madras, and as the peasants do all the work themselves on their own land, they see no secret process is used and the government is not trying to serve its own ends, as is sometimes thought when government land is used for demonstrations. In 1926-27 about 600 demonstration plots of this kind were scattered over the province, and the demand for them was increasing. The demonstrations have included better methods of planting, growing, and fertilizing paddy (rice); growing improved varieties, better methods of planting and fertilizing sugar cane; improved varieties and methods of growing cotton; dry farming methods of growing cocoanut; and control of plant pests and diseases. To show the farmers that large areas can be grown as successfully as small plots by improved methods, 10 acres of a peasant's land is sometimes used for demonstration purposes, one-half devoted to improved methods, and the other to the practice of methods in common use.

A striking instance of the success of demonstration work in Madras is the introduction of an economical furnace for converting sugar-cane juice into jaggery (a coarse kind of sugar) in which megass (dry cane

.Instances of success
of demonstrations in
Madras

after extraction of juice) and trash can be used for fuel instead of wood from the forests, hundreds of cartloads of which were needed to supply the old type of furnace. Hundreds of the newer

type of furnace are now being used, and the sugar-cane industry, which had died out in many places on account of the cost of wood, is now being revived. The peasants save from 50 to 100 rupees an acres (\$16 to \$32) according to the distance they are located from the forests. The adoption of Bordeaux mixture as a spray for fungous diseases of palm trees is the result of a vigorous campaign that was conducted for four or five years with the assistance of cooperative societies. In 1926, almost 2,000,000 trees were sprayed, mostly under the direction of the department of agriculture, and the peasants can now be trusted to do the work themselves.

